



Exponential Function Solution Equation - Decay (Discrete) - Scenario to Time

1

A toxin starts at a concentration of 900mg/L. Each hourly dialysis reduces it by 6%. After a certain number of hours it has decreased to a concentration of 747mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{747}{900}}{\ln(1 + 0.06)}$	$t = \frac{\ln \frac{747}{900}}{\ln(1 - 0.06)}$

2

A bird population starts at 900. Each subsequent year it declines by 6%. After a certain number of years it has decreased to a population of 795.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{795}{900}}{\ln(1 - 0.06)}$	$t = \frac{\ln 795 \cdot 900}{\ln(1 - 0.06)}$
C	
$t = \frac{\ln \frac{795}{900}}{\ln(1 + 0.06)}$	

3

A charitable endowment starts with \$300. Each weekly it disburses 4% of its remaining funds. After a certain number of weeks its funds have decreased to \$244.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{244}{300}}{\ln(1 + 0.04)}$	$t = \frac{\ln 244 \cdot 300}{\ln(1 - 0.04)}$
C	
$t = \frac{\ln \frac{244}{300}}{\ln(1 - 0.04)}$	

4

A toxin starts at a concentration of 500mg/L. Each weekly dialysis reduces it by 3%. After a certain number of weeks it has decreased to a concentration of 380mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{380}{500}}{\ln(1 - 0.03)}$	$t = \frac{\ln \frac{380}{500}}{\ln(1 + 0.03)}$

5

A toxin starts at a concentration of 500mg/L. Each weekly dialysis reduces it by 4%. After a certain number of weeks it has decreased to a concentration of 391mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{391}{500}}{\ln(1 - 0.04)}$	$t = \frac{\ln \frac{391}{500}}{\ln(1 + 0.04)}$

6

A whale population starts at 600. Each subsequent year it declines by 7%. After a certain number of years it has decreased to a population of 518 whales.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{518}{600}}{\ln(1 - 0.07)}$	$t = \frac{\ln 518 \cdot 600}{\ln(1 - 0.07)}$

7

A toxin starts at a concentration of 900mg/L. Each monthly dialysis reduces it by 7%. After a certain number of months it has decreased to a concentration of 626mg/L.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{626}{900}}{\ln(1 + 0.07)}$	$t = \frac{\ln \frac{626}{900}}{\ln(1 - 0.07)}$

8

A charitable endowment starts with \$600. Each daily it disburses 8% of its remaining funds. After a certain number of days its funds have decreased to \$334.

Rearrange the exponential equation to solve for for the time given this scenario?

A	B
$t = \frac{\ln \frac{334}{600}}{\ln(1 + 0.08)}$	$t = \frac{\ln 334 \cdot 600}{\ln(1 - 0.08)}$
C	
$t = \frac{\ln \frac{334}{600}}{\ln(1 - 0.08)}$	